

# MAINTENANCE OF PROPANE SERVEL REFRIGERATORS

CA 20N  
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Ontario

Ministry of  
Consumer and  
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Relations

**Unserviced or poorly maintained propane refrigerators can kill you. Lethal quantities of carbon monoxide can be produced if the refrigerator flame is improperly adjusted or partially blocked by dirt. For your safety, a propane refrigerator *must* receive proper attention.**

**Your unit must be cleaned and adjusted *every* year. *Never* start a propane refrigerator at the beginning of a season without first making sure that it has been serviced.**

**Ideally, a propane refrigerator should be serviced by a licensed propane fitter who is familiar with this type of equipment.**

**However, professional maintenance is sometimes unavailable because of reasons of distance, etc.**

**For this reason, the Energy Safety Branch of the Ministry of Consumer and Commercial Relations has prepared this brochure as a guide for the propane refrigerator user in the cleaning and adjustment of these units. With a little care and a few tools, you will be able to ensure that your unit is operating safely and efficiently.**

**Keep this brochure for reference in the yearly servicing of your propane refrigerator.**

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## General

A propane refrigerator with a blocked flue passage or one with a burner that is improperly adjusted or partially plugged can produce carbon monoxide in DEADLY quantities.

Annual servicing of the refrigerator, *at the beginning of each season*, with particular attention given to the thorough cleaning of the flue passage and burner is *essential for safe operation*.

In addition, it is strongly recommended that the burner be cleaned immediately after the refrigerator has been moved from one location to another, regardless of the distance the refrigerator has been moved. This is to ensure that the burner is free of any scale deposits from the flue passage that are often dislodged by such moving.

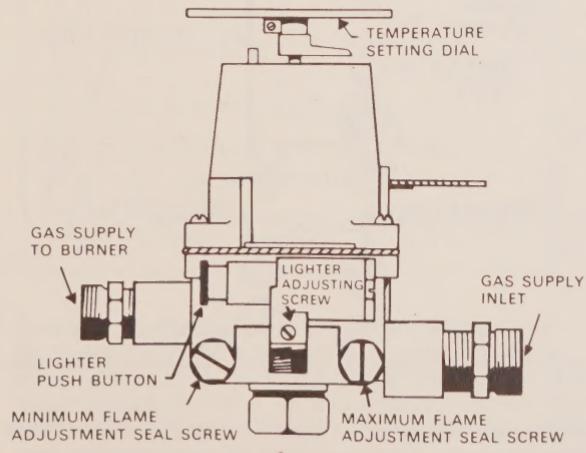
**THIS CLEANING AND SERVICING PROCEDURE SHOULD BE DONE BY A LICENSED PROPANE FITTER WHO IS FAMILIAR WITH THIS TYPE OF EQUIPMENT.**

Where the services of a licensed propane fitter are difficult to obtain, the following material is provided as a guide to the field servicing and cleaning of the SERVEL propane refrigerator.

**Remember, never start up the refrigerator at the beginning of the season until it has been properly cleaned and adjusted.**

FIGURE 1 Thermostat

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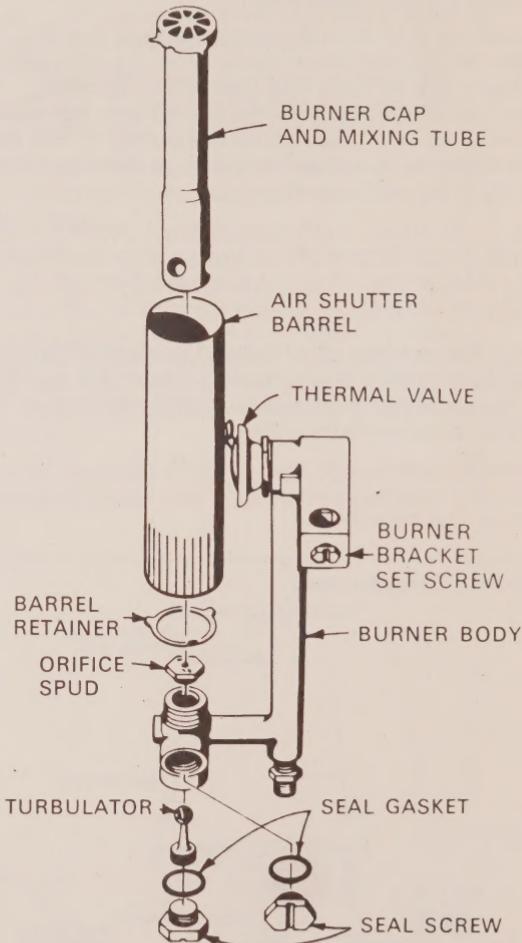
## Procedure

To service your refrigerator properly, you will require about 3 hours of time.

- Shut off propane supply at the cylinder(s.)

2A  
FIGURE 2 **Exploded view of Burner**

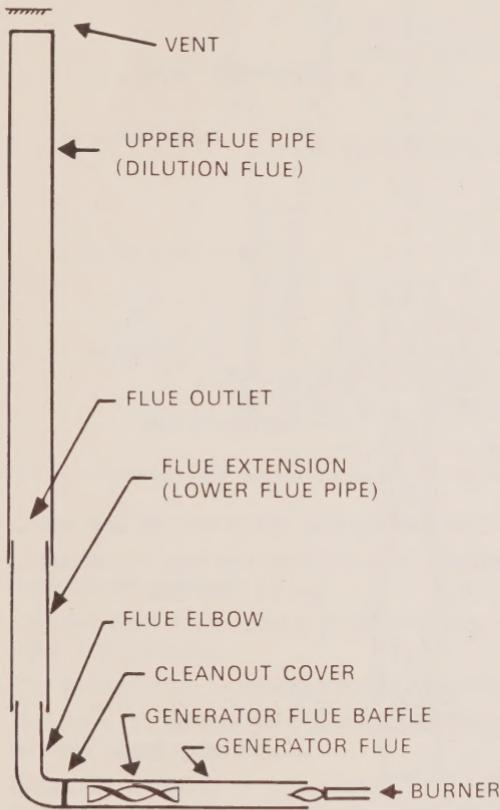
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- Disconnect propane supply line at the point where it connects to the refrigerator thermostat (See Fig. 1).
- Pull refrigerator away from wall, far enough to permit access to the back.

- Remove large back cover panel and the grill from the top of the refrigerator.
- Disconnect the propane line between the thermostat and the burner, *at the burner*.
- Loosen the burner bracket set screw (See Fig. 2).

FIGURE 3 **Side View of Flue Passage (horizontal burner)** 9/74

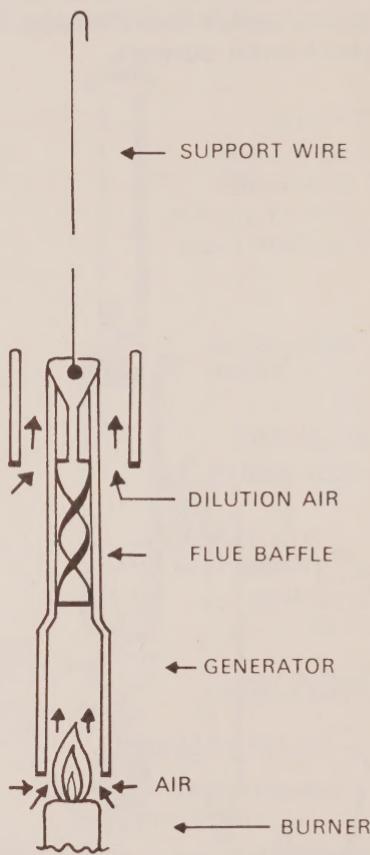


- Remove upper flue (this is an oval shaped part, approximately 30" long, made of asbestos fibre material that is to be found at the back upper right hand side of the unit). In many refrigerators a flue baffle will be attached by a wire to this upper flue and will be withdrawn from the flue passage with the removal of the upper flue. (See Fig. 3).

- All refrigerators must have a baffle located in the flue passage, which must be removed to facilitate cleaning; this baffle may be supported in the flue by:

FIGURE 4 Vertical Burner & Flue

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- a long wire connected to the baffle and extending to the top of the upper flue, or
- a short wire or metal link either hooked to, or supported at, the flue outlet.

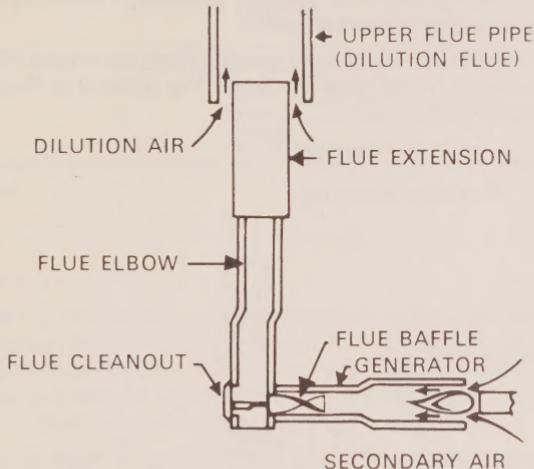
In the type of refrigerator equipped with a *vertical burner*, ensure that the flue baffle has not separated from its support wire (See Fig. 4).

In the type of refrigerator equipped with a *horizontal burner*, the flue baffle is removed through the flue clean-out, as seen in Fig. 5.

- Using a long-handled wire brush or a cloth swab attached to a piece of wire, thoroughly clean the flue passage.

FIGURE 5 **Horizontal Burner & Flue**

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- Clean and replace baffle and upper flue.
- Clean all lint and dirt from the pipe cooling fins at back of refrigerator.
- Replace back cover and top grill and move refrigerator back into position.
- The burner must be disassembled. (See Fig. 2).  
Unscrew the air shutter barrel, mixing tube and remove barrel retainer;  
Clean the opening in orifice spud with a sharpened match or toothpick; NEVER use anything metallic for this purpose.
- Clean all parts and reassemble burner, tighten outer barrel firmly by hand.
- Replace burner on bracket, position in the following manner:
  - Burner spacing is *one* of the other adjustments which must be correct. Spacing has a direct effect on the supply of primary and secondary air needed for proper combustion of the gas-air mixture.

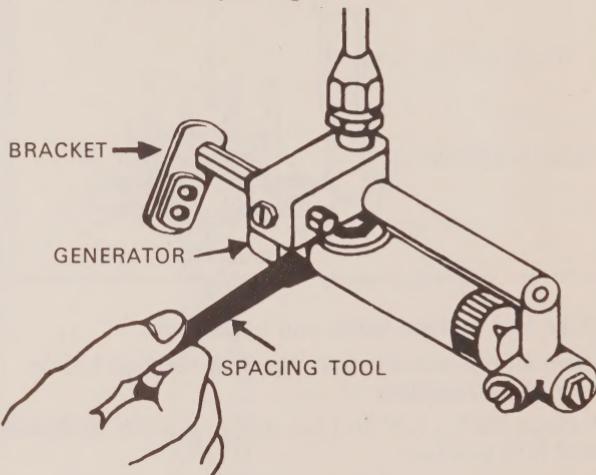
b) The spacing tool shown in Fig. 6 is made of a 6" length of  $\frac{3}{8}$ " O.D. tubing. Flatten one end until it is  $\frac{1}{2}$ " wide. This makes a combination tool which will give  $\frac{3}{8}$ " spacing on the round end and  $\frac{1}{2}$ " spacing on the flat end. The spacing tool should always be inserted at right angles as shown. The space is measured between the edge of the burner *barrel* and the end of the generator flue.

If the burner spacing is less than recommended, minimum flame may go out, because it does not contact the heat conductor.

If the burner spacing is greater than recommended, minimum flame may not enter the generator flue (See Fig. 7).

FIGURE 6 **Burner Spacing**

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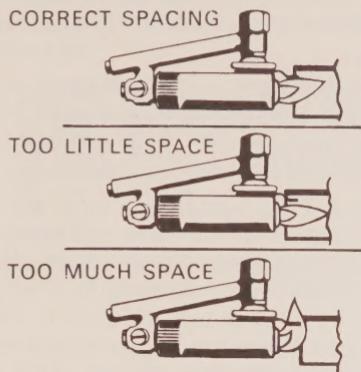


c) Proper spacing dimensions are: one-half inch ( $\frac{1}{2}$ ") for the *vertical generator* models on any kind of gas, three-eighths inch ( $\frac{3}{8}$ ") for *side-to-side generators* on any kind of gas, three-eighths ( $\frac{3}{8}$ ") for *front-to-back generators*.

- Connect all gas lines, turn on propane supply and using a soap and water solution with a brush, check all connections for leaks; repair any leaks before proceeding.

FIGURE 7 **Burner Spacing**

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## Leveling

The equal distribution of the liquid within the freezing compartment requires the unit to be installed and maintained in a level position, both front to back and side to side. An unlevel freezing compartment causes slow freezing and higher cabinet temperatures.

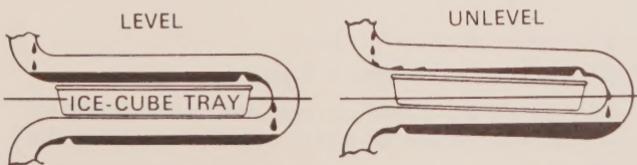
Check level of refrigerating unit by placing a small spirit level on the bottom ice-cube tray shelf, front to back and side to side. The tray shelf should be clean of frost or ice before leveling.

If a spirit level is not available, check the level of the refrigerating unit by placing an ice-cube tray, partly filled with water, on the clean bottom ice-cube tray shelf. When level, the surface of the water will be parallel with the top of the tray.

Levelness of refrigerating unit may also be checked by observing the thickness of the ice cubes. When level, the ice cubes in a tray on a clean shelf will have uniform thickness. (See Fig. 8).

FIGURE 8 **Freezing Compartment**

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Use solid shims under the legs of the refrigerator to keep it level. Strengthen weak floors to prevent their sagging.

### Lighting the Burner

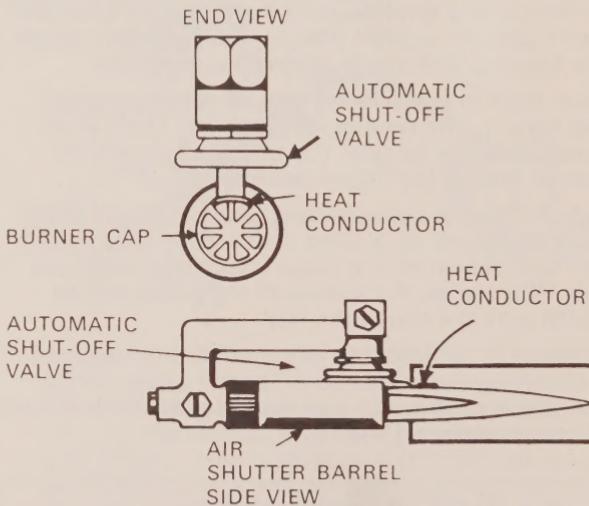
The open end of the lighter tube ( $\frac{1}{8}$ " line leading from thermostat) should be positioned so that the lighter flame contacts the burner shut-off valve disc, as well as the underside of the heat conductor.

The open end of the lighter tube must also be located in such a position that the flame will ignite the propane as soon as the automatic shut-off valve snaps open (allow 3 or 4 minutes for shut-off valve to open).

Hold a lighted match at the open end of the small burner lighter tube. To light burner lighter, push the button located on the thermostat at the other end of the lighter tube. The lighter flame will only burn as long as this button is pushed.

FIGURE 9 Heat Conductor Positioning

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### Adjusting Burner Flame

Set thermostat at number 1 position.

Turn air shutter barrel *counter-clockwise* to adjust flame until it assumes a blue colour eliminating the

white or yellow flame tip (air shutter barrel should be turned no more than  $\frac{1}{4}$ "); if flame setting desired cannot be achieved in this amount of travel, then other problems exist that should be corrected by a qualified serviceman.

Ensure that the flame is entering the flue passage; cold flues have little or no draft, so it is sometimes necessary to assist the flame into the flue passage with the use of a piece of tubing and blowing gently into the flue passage opening.

### **Position of Heat Conductor**

For proper operation, the heat conductor must touch the flame WHEN THE THERMOSTAT IS SET ON THE DEFROST POSITION. Normally this will occur when the concave surface of the heat conductor is lined up with the inside rim of the burner cap. (See Fig. 9).

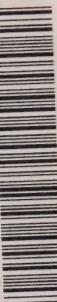
Further information regarding the installation and servicing of gas and oil-fired appliances is available on request from:

The Energy Safety Branch  
Technical Standards Division  
Ministry of Consumer and Commercial Relations  
Queen's Park  
TORONTO, ONTARIO

Other branches of the Technical Standards Division are:

- Operating Engineers Branch
- Boilers & Pressure Vessels Branch
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